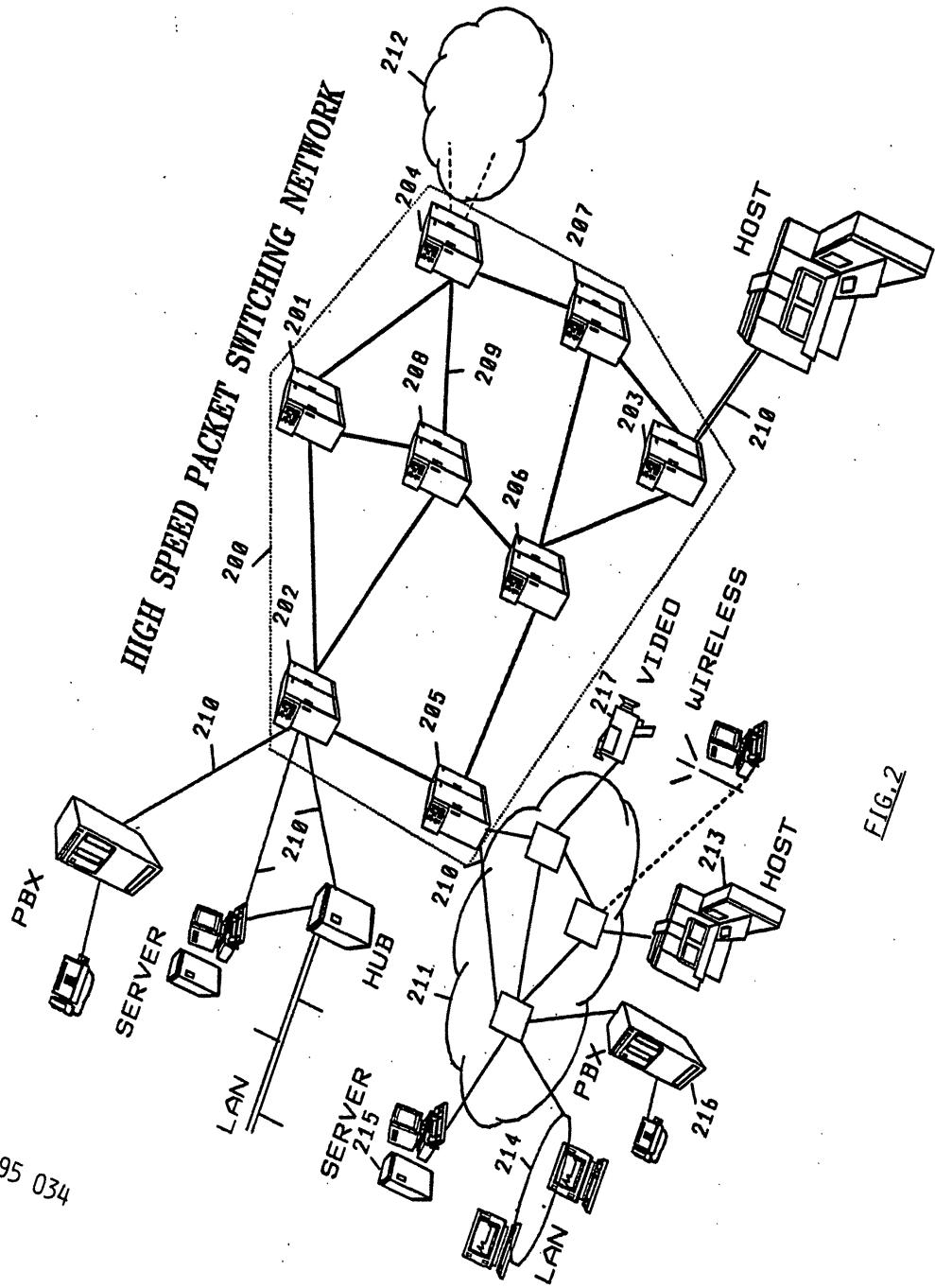


FIG.1

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HIGH SPEED PACKET SWITCHING NODE

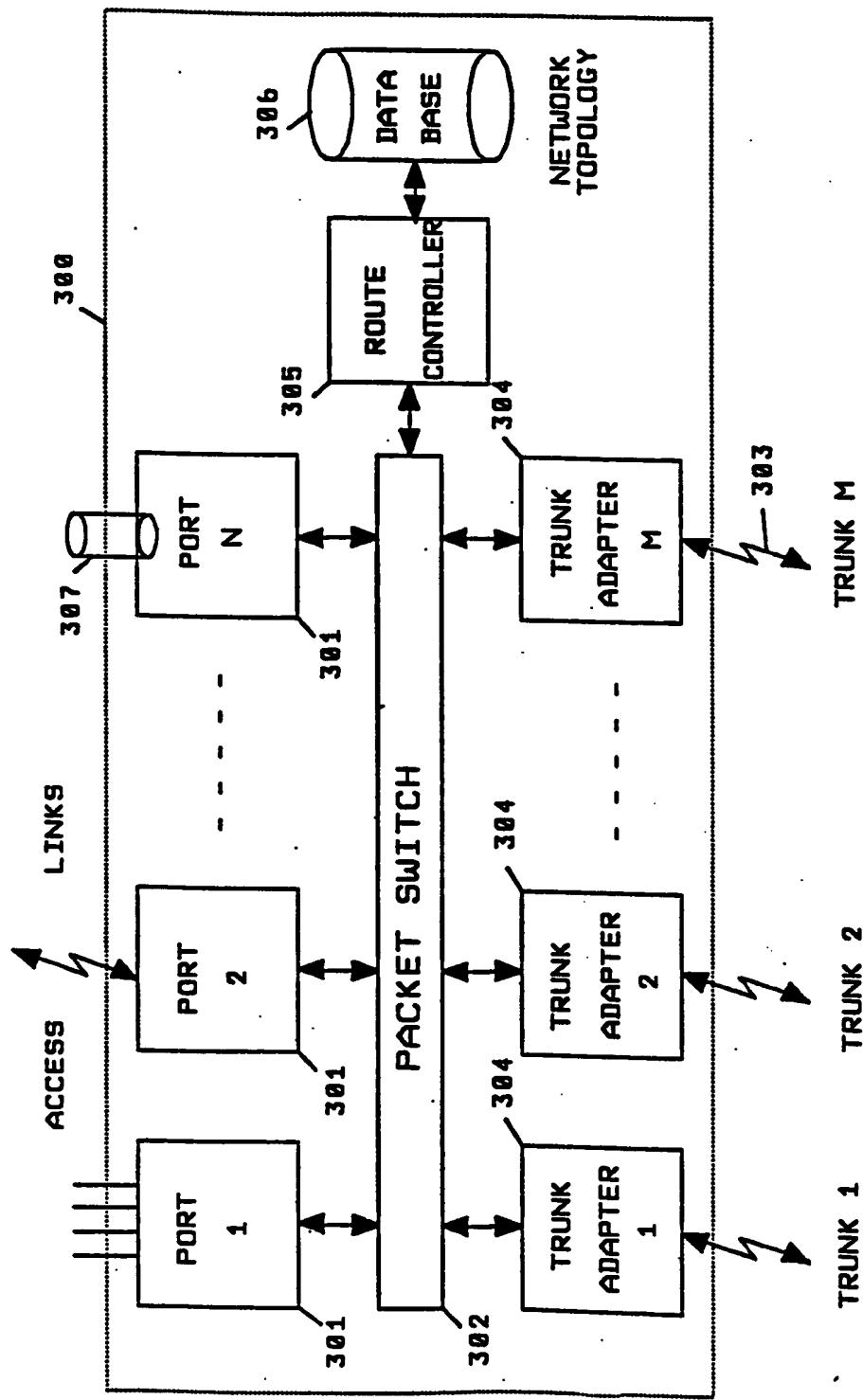


FIG.3

**ALTERNATE
PATH
DATABASE (APD)**

420

Link table

| | link k | link l | link n.... |
|----------------------------|--------|--------|------------|
| link identifiers (422) | | | |
| link characteristics (423) | | | |
| C (bps) | | | |
| rf (%) | | | |
| \hat{C}_R (bps) | | | |
| M_{NR} (bps) | | | |
| \hat{C}_T (bps) | | | |
| mps (bytes) | | | |
| parent path (424) | | | |

410

Path table

| | path 1 | path 2 | path 3 ... |
|---------------------------------------|--|--------|------------|
| parent link (416) | link i | | |
| destination node (412) | node B | | |
| link list (411) | link k link l link m | | |
| path characteristics (413) | | | |
| max packet size | 512 bytes | | |
| max delay | 20 ms | | |
| jitter | 20 ms | | |
| loss probability | 10^{-6} | | |
| hopcount | 2 | | |
| bandwidth reservation (414) | | | |
| bandwidth used per link | 10 Mbps 5 Mbps 15 Mbps | | |
| remaining available bandwidth on path | 20 Mbps | | |
| list of rerouted connections (415) | conn. i conn. j conn. r conn. s | | |

FIG.4

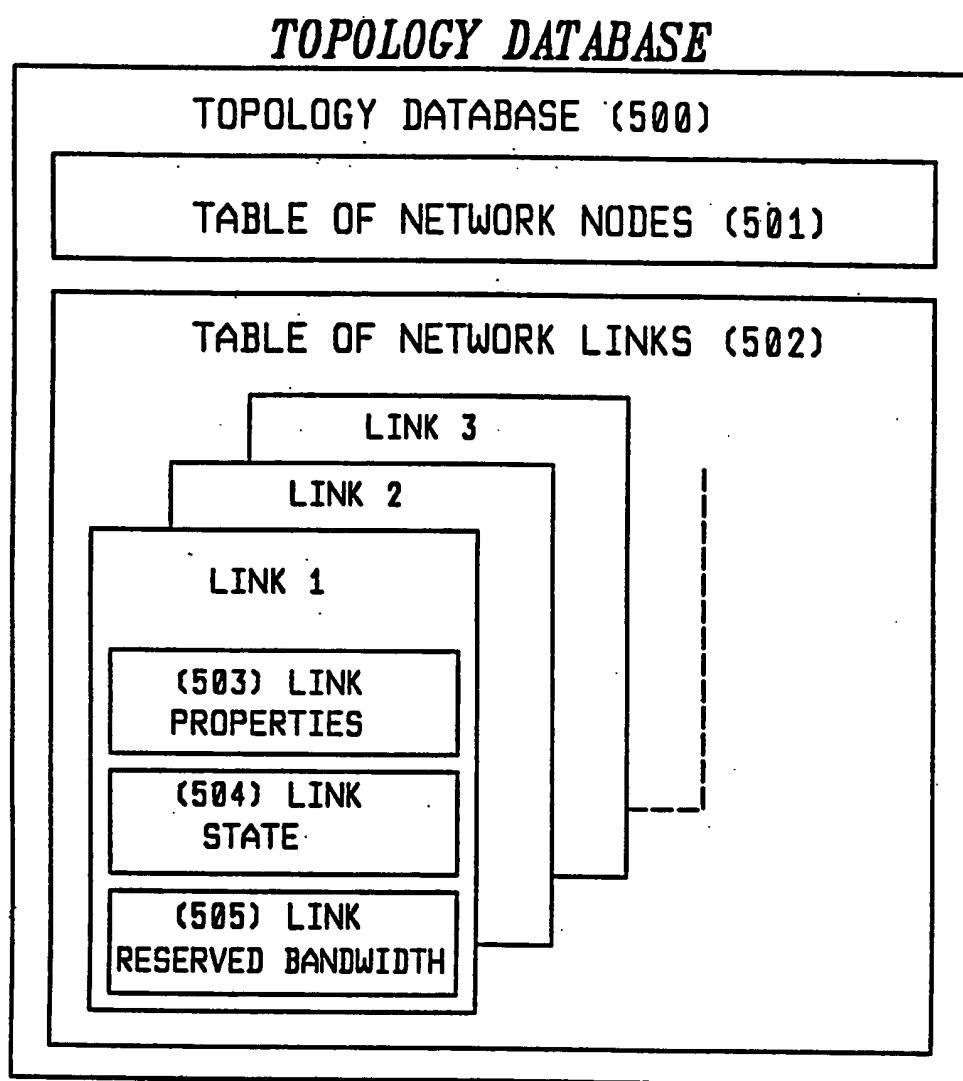
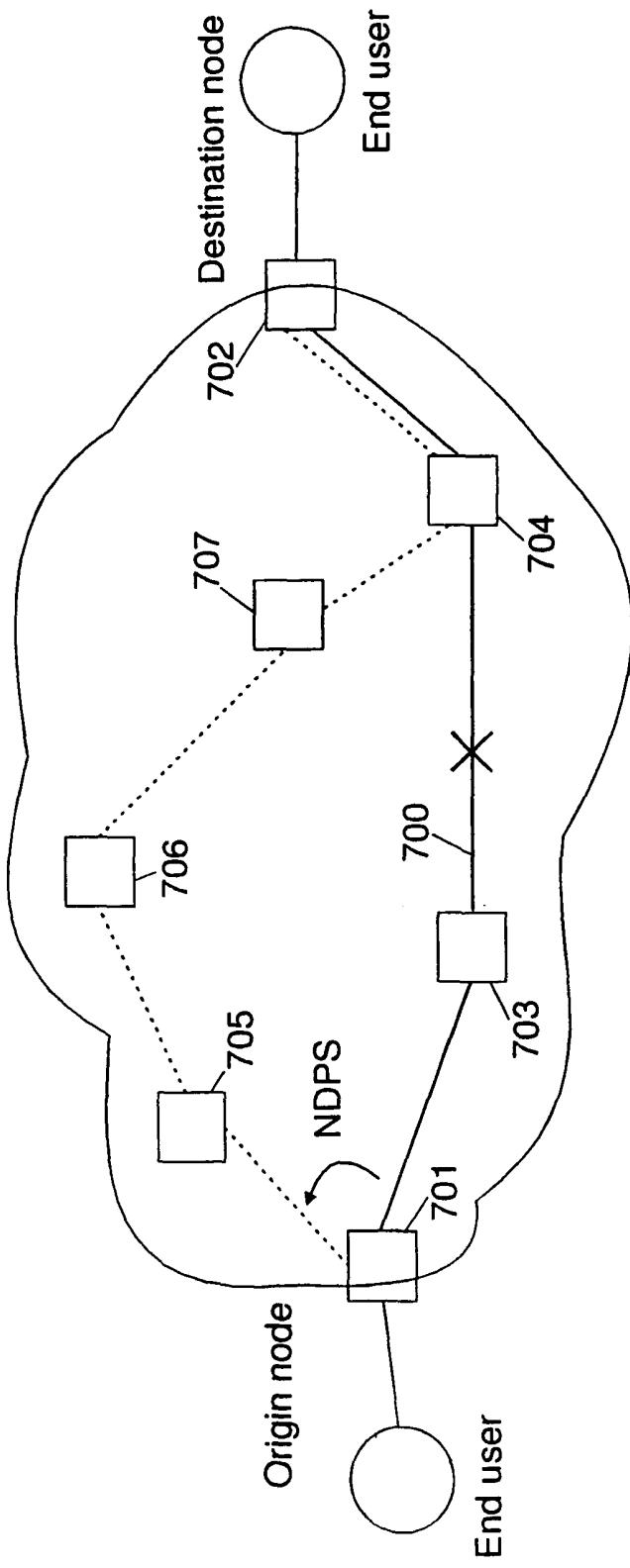


FIG.5

TOPOLOGY DATABASE
Link characteristics

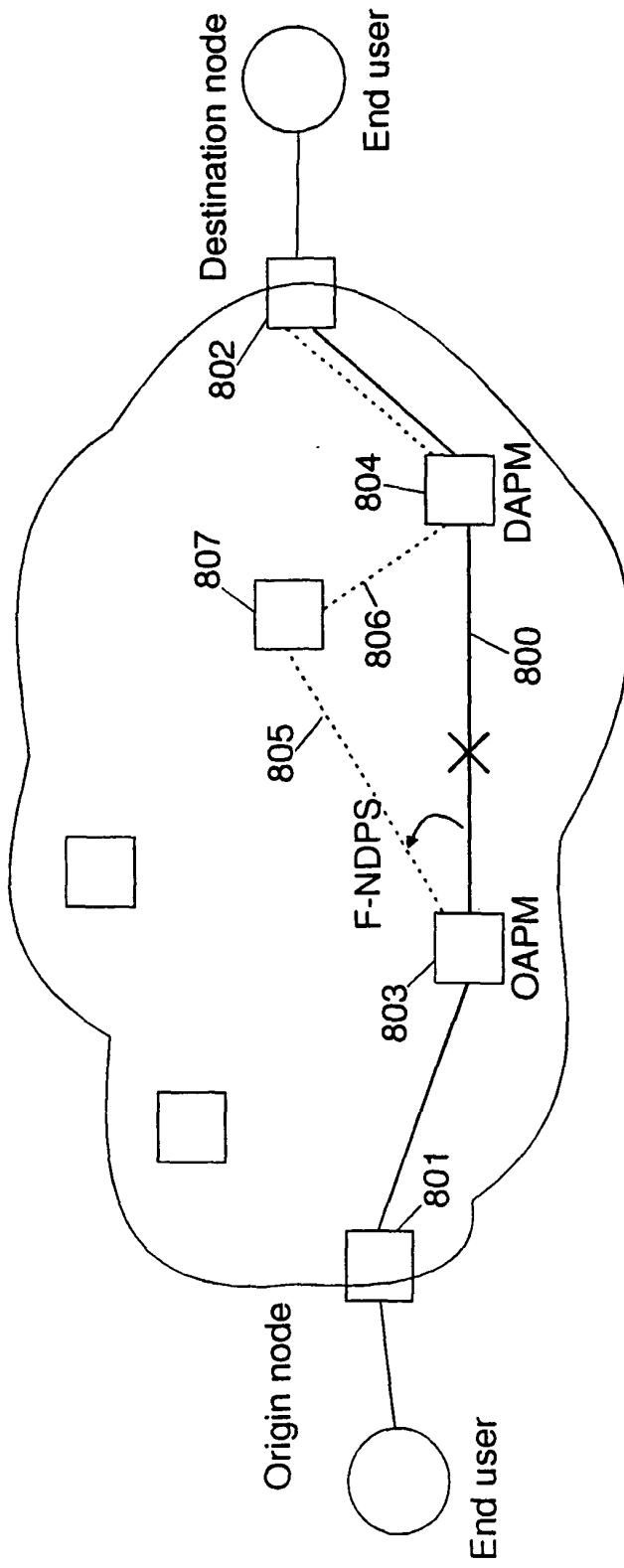
| <u>NAME</u> | <u>DESCRIPTION</u> | <u>LINK VALUES</u> | | | |
|-------------|--|--------------------|-----------------|---------|-----------------|
| C | Total capacity (bps) | C_A | C_B | \dots | C_N |
| f | Reservable fraction (%) | f_A | f_B | \dots | f_N |
| \hat{C}_B | Total reserved bandwidth (bps) | $\hat{C}_{B,A}$ | $\hat{C}_{B,B}$ | \dots | $\hat{C}_{B,N}$ |
| M_{NR} | Total bandwidth used by NR traffic (bps) | $M_{NR,A}$ | $M_{NR,B}$ | \dots | $M_{NR,N}$ |
| mps | Maximum packet size (bytes) | mps_A | mps_B | \dots | mps_N |

FIG.6

Non Disruptive Path Switching (current)

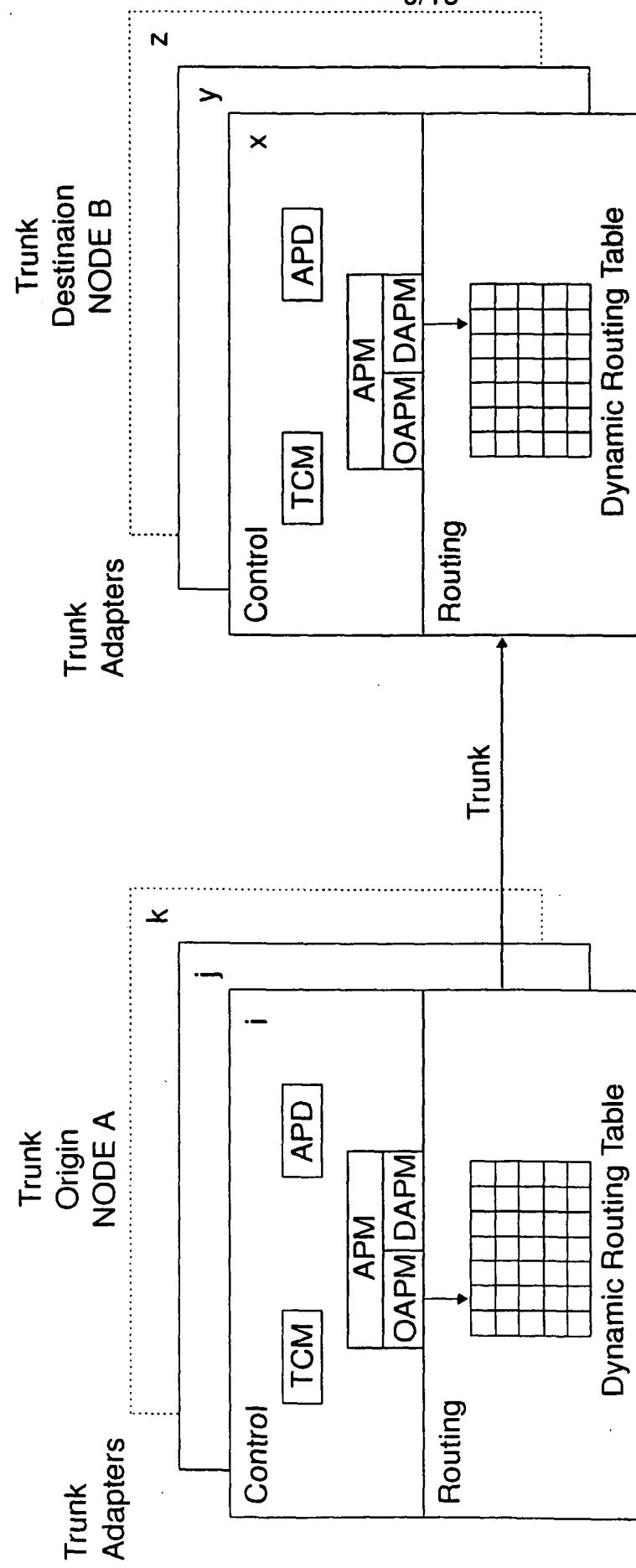
- End to End Path Switching
- On a per connection basis

FIG.7

Fast Non Disruptive Path Switching

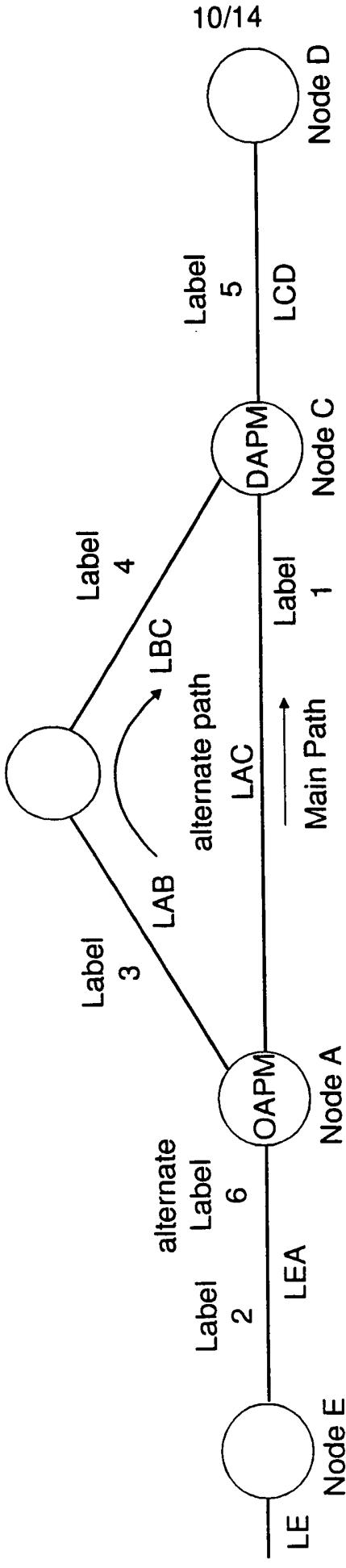
- Backup Path for trunk
- On a per connection basis

FIG.8

FIG.9

| Connection | Input Label | Output Label |
|------------|-------------|--------------|
| i | 3 | 4 |
| . | . | . |
| . | . | . |
| . | . | . |

Routing Table
Node B



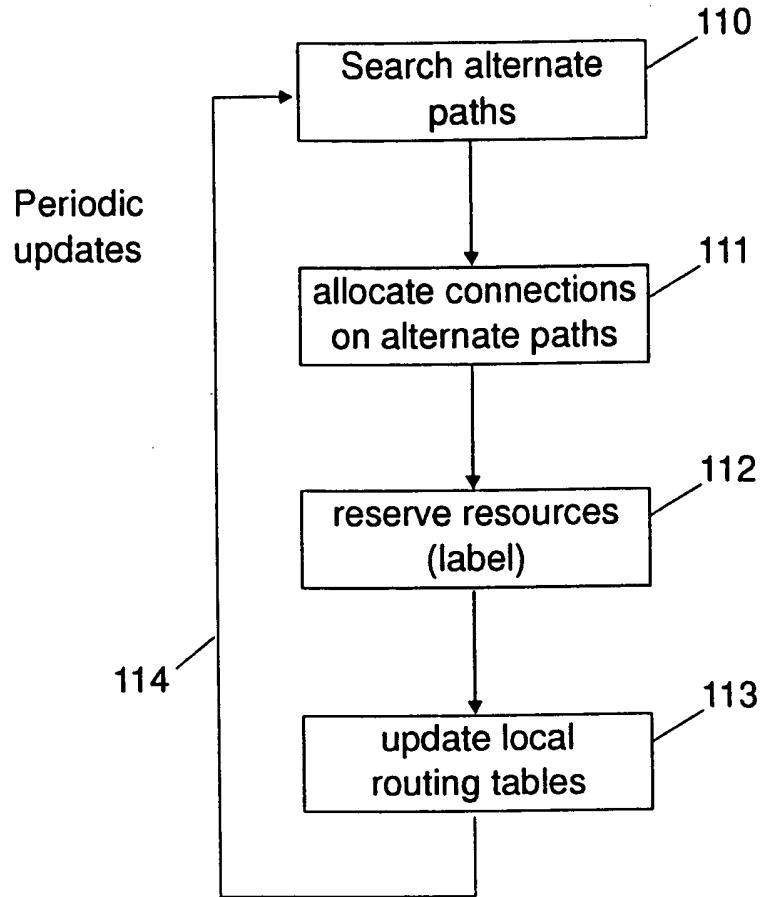
| Connection | Input Label | Output Label |
|------------|-------------|--------------|
| i | 1 | 5 |
| . | 4 | 5 |
| . | . | . |
| . | . | . |

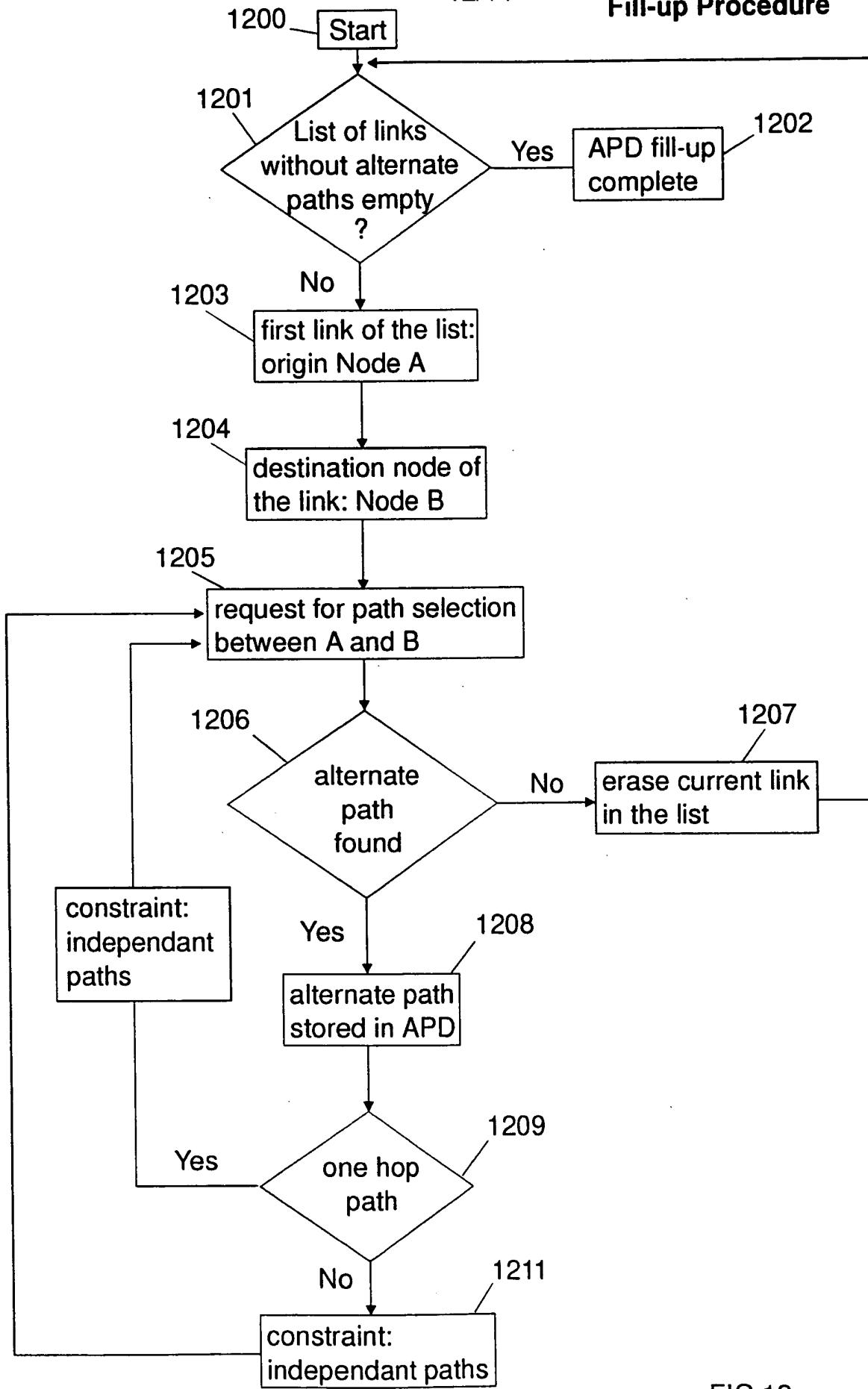
Routing Table
Node D

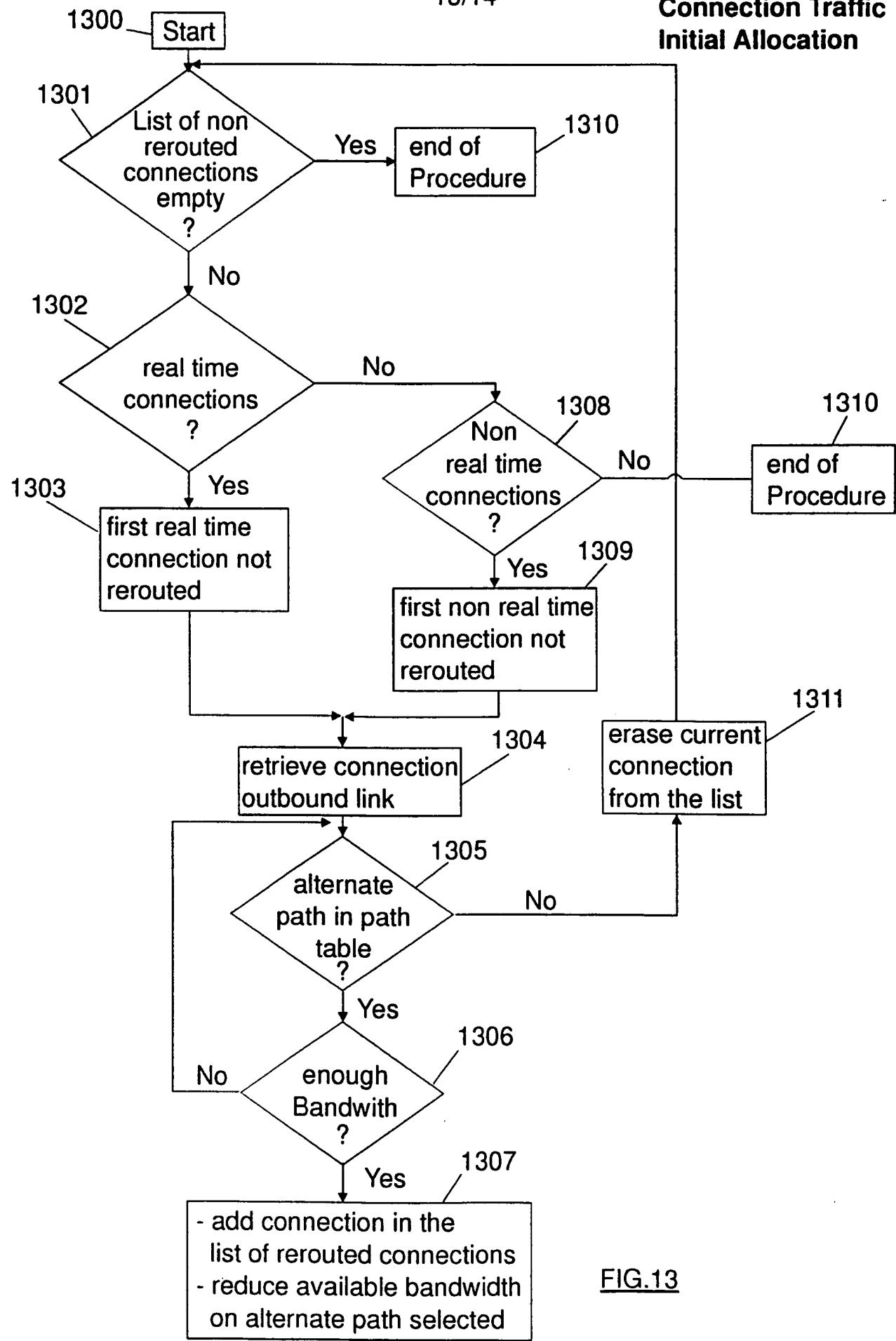
| Connection | Input Label | Output Label |
|------------|-------------|--------------|
| i | 1 | 5 |
| . | 4 | 5 |
| . | . | . |
| . | . | . |

Routing Table
Node A

FIG.10

Alternate Paths Manager TasksFIG.11

Fill-up ProcedureFIG.12

**Connection Traffic
Initial Allocation**
FIG.13

Connection Allocation Update

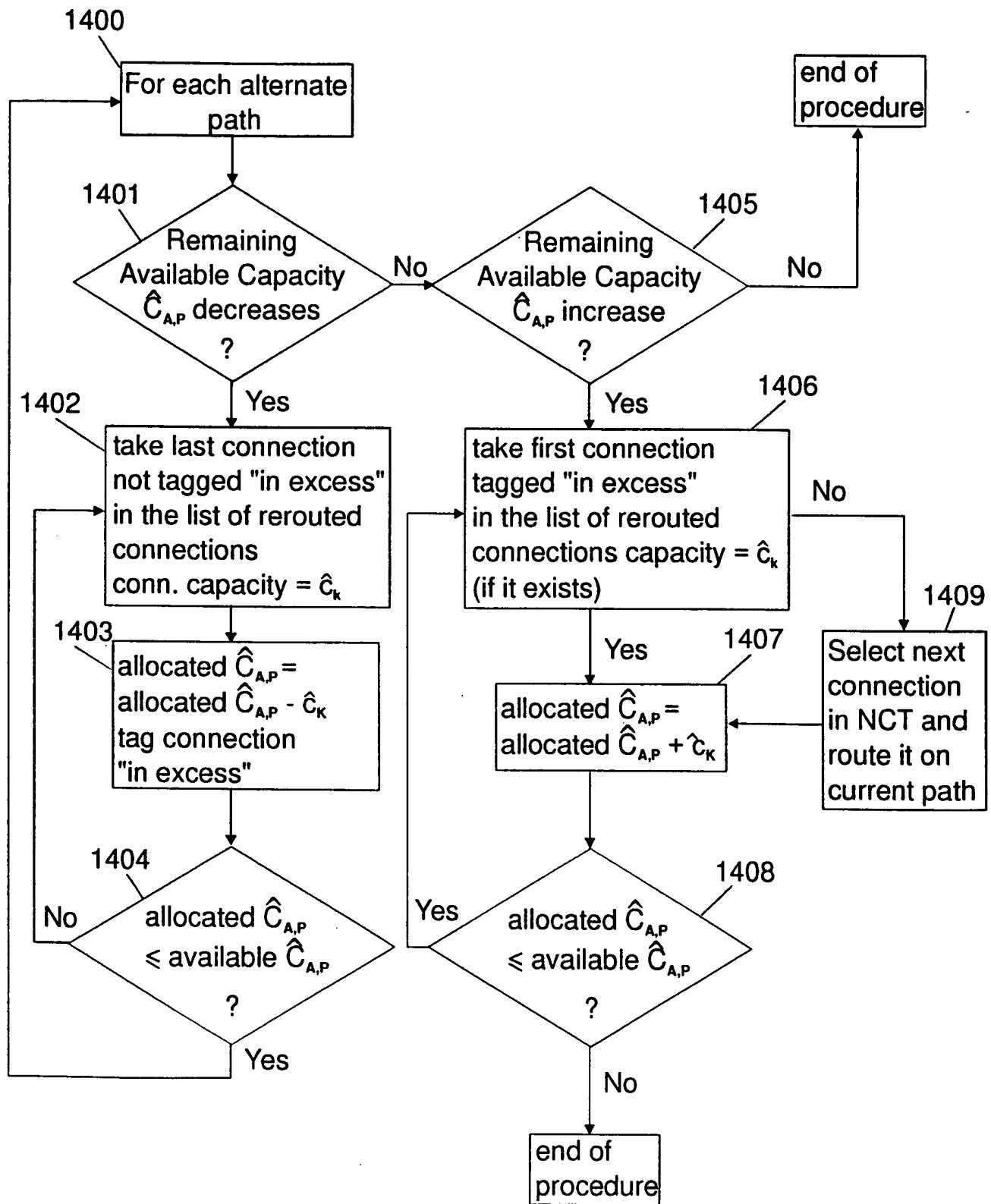


FIG.14